

Metric Units of Measurement

Notes

Learning Objective: In writing, SWBAT identify and use appropriate prefixes and units of measurement for length, using academic language.

<http://www.brainpop.com/science/scientificinquiry/metricunits/>

Unit an amount that never changes

Units for length

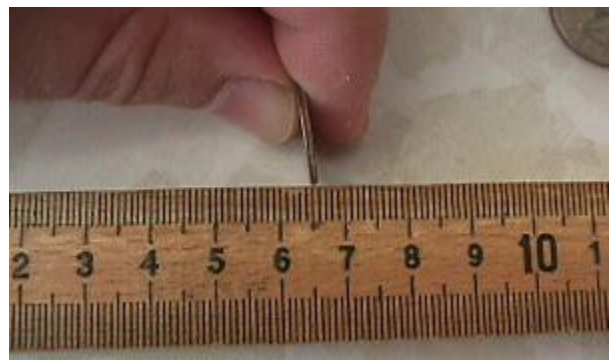
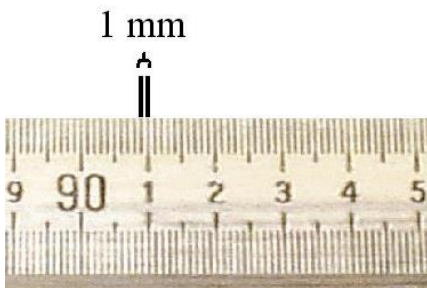
- millimeters
- centimeters
- meters
- kilometers

Milli- = 1/1000 (thousandth)

Millimeter
(mm)

1/1000 of a meter

About the width of a dime



Centi-

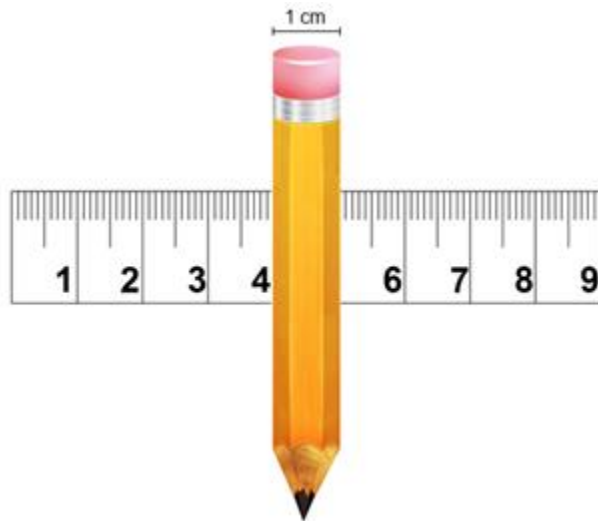
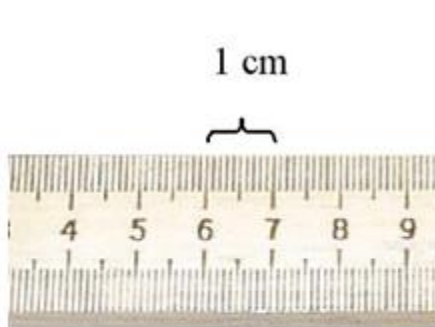
= 1/100 (hundredth)

Centimeter

(cm)

1/100 of a meter

About the width of a pen or pencil



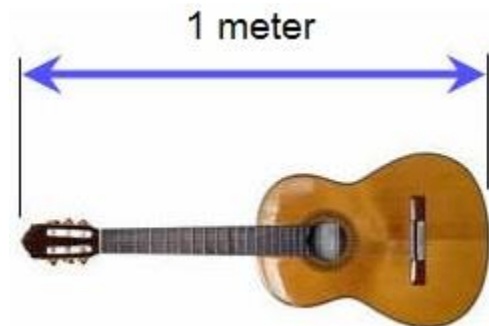
Meter

(m)

the basic unit of measurement for length

1 m = 100 cm

1 m = 1000 mm



Kilo-

= 1000 (thousand)

Kilometer
(km)

1000 meters

Kilometers are used for longer distances

Meterstick

a tool used to measure length



Learning Objective:

In writing, SWBAT identify and use appropriate units of measurement for volume using academic language.

Volume

a measure of how much space something occupies

Units for volume

- cubic centimeters
- milliliters
- liters

Cubic centimeter(cc, cm³)

a unit of measurement for volume

$$= 1 \text{ cm} \times 1 \text{ cm} \times 1 \text{ cm}$$

$$= 1 \text{ mL}$$

Milliliter

(mL)

1/1000 of a liter

Liter

(L)

the basic unit of measurement for liquid volumes

$$1 \text{ L} = 1000 \text{ mL}$$

Liquid volumes

use L, mL or cc

Can be measured in a beaker or graduated cylinder

Learning Objective:

In writing, SWBAT identify and use appropriate units of measurement for mass using academic vocabulary.

Mass

how much matter is in an object

Units for mass

- milligram
- gram
- kilogram

Gram

(g)

the basic unit of measurement for mass

Kilogram

(kg)

1000 grams

Milligram

1/1000 of a gram

Balance

a tool used to measure mass

**Learning Objective:**

In writing, SWBAT identify and use appropriate units of measurement for temperature and read a thermometer using academic language.

Celsius

(°C)

basic unit of measurement for temperature

Metric Units of Measurement

Check Your Understanding

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1. How many centimeters are in a meter? How many grams are in a kilogram?

*There are _____ centimeters in a meter.
There are _____ grams in a kilogram.*

2. What do scientists use units for?

*Scientists measure length in _____, _____, _____, and _____.
They measure volume in _____, _____, and _____, mass in _____, _____, and _____, and temperature in _____.*

3. What do scientists measure?

Scientists measure _____, _____, _____, and _____.

4. What units do scientists use to measure:

a. The length of a soccer field?

Scientists use _____ to measure the length of a soccer field.

b. The mass of a bag of fruit?

Scientists use _____ to measure the mass of a bag of fruit.

c. The amount of juice in a bottle?

Scientists use _____ to measure the amount of juice in a bottle.

Learning Objective: In writing, SWBAT explain the metric system and why it is used using academic language.

Metric system

a system of measurement that is based on the number ten and multiples of ten

Why use the metric system?

so everyone is using the same system

Makes it easier to communicate information

Before the metric system, people in different countries used different systems of measurement

Kind of Measurement	Base Unit	Other Units
length or distance	meter (m)	kilometer (km) = 1000 meters centimeter (cm) = .01 meters millimeter (mm) = .001 meters
mass	gram (g)	kilogram (kg) = 1000 grams
volume	liter (L)	milliliter (mL) = .001 liters

Metric prefixes

show larger and smaller units

Temperature

a measure of how hot or cold something is

Fahrenheit

unit of temperature used by most people in the United States

Celsius

unit of temperature used by most of the world and scientists



Thermometer

a tool used to measure temperature

Metric Units of Measurement

Science Skill

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- | | |
|---|---|
| 1. What do both scales measure? | <i>Both scales measure _____</i> |
| 2. At what temperature does water freeze on each scale? | <i>Water freezes at _____ on the Fahrenheit scale. Water freezes at _____ on the Celsius scale.</i> |
| 3. At what temperature does water boil on each scale? | <i>Water boils at _____ on the Fahrenheit scale. Water boils at _____ on the Celsius scale.</i> |

Metric Units of Measurement

Check Your Understanding

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|--|--|
| 1. What are the abbreviations for the base units of the metric system? | <i>The abbreviations for base units in the metric system are _____ for length, _____ for volume, and _____ for mass.</i> |
| 2. What measurement system do scientists in use in the United States? | <i>Scientists in the United States use the _____ of measurement.</i> |

3. What tool do scientists use to measure temperature? What scale do scientists use?

Scientists use a _____ to measure temperature.

They use the _____ scale to measure temperature.

4. Why do scientists use meters and centimeters and not feet and inches?

Scientists use meters and centimeters instead of feet and inches because scientists all over the world

_____ .